

# Marine Debris

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## Japan Tsunami Marine Debris:

### *Information and actions*

*January 29, 2013*

**Peter Murphy**

Alaska Coordinator  
NOAA Marine Debris Program

# Marine Debris

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## NOAA Marine Debris Program

- Established in 2005
- Mandated by the Marine Debris Research, Prevention, and Reduction Act, Dec. 2006
- Dedicated to leading and promoting research, prevention, and reduction activities nationwide
- Regional Structure
- Website:

<http://marinedebris.noaa.gov/>





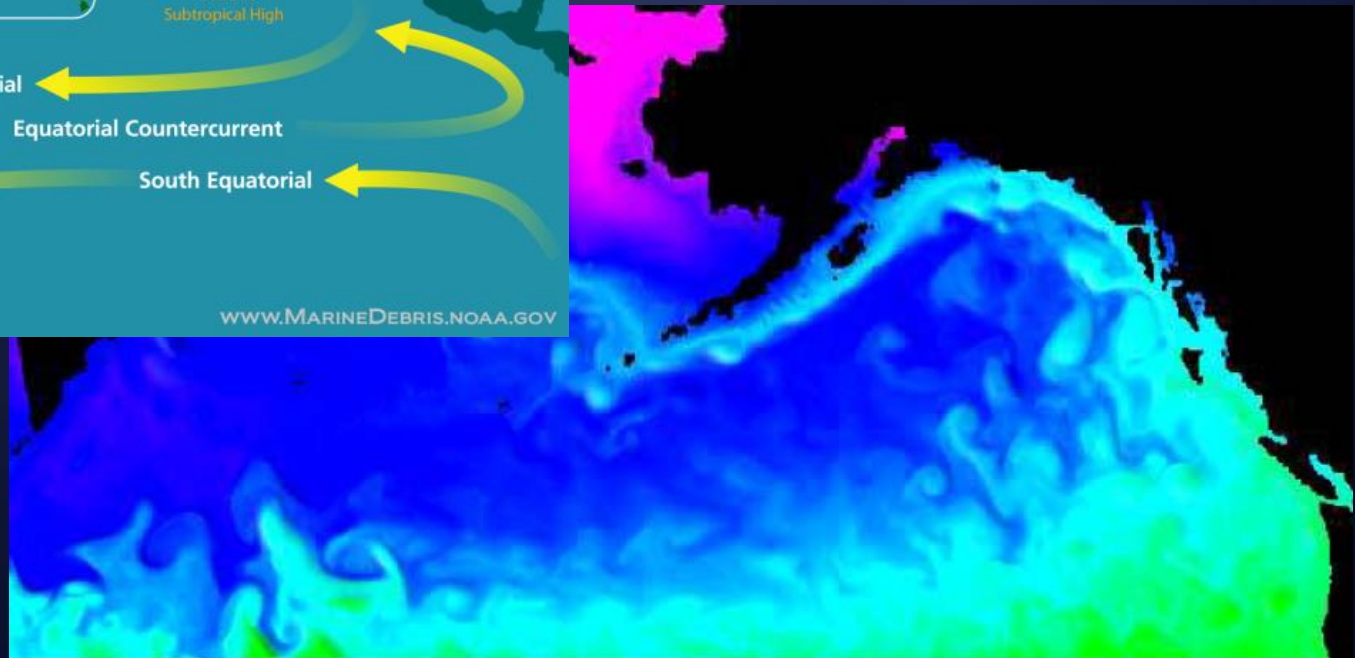
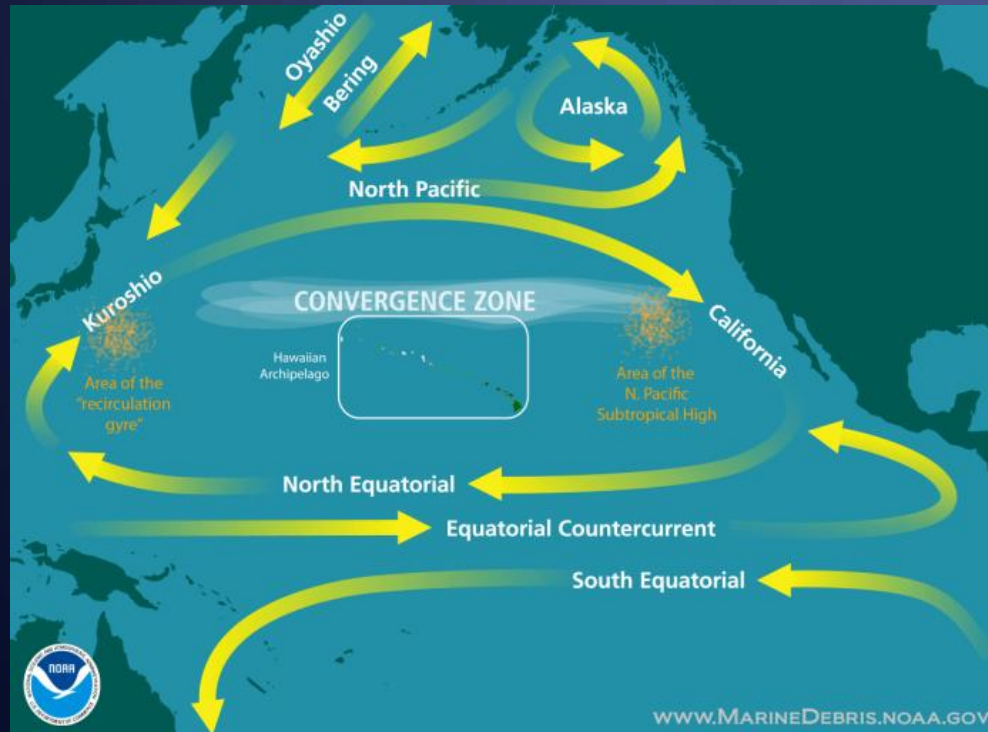
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## Marine Debris in Alaska.



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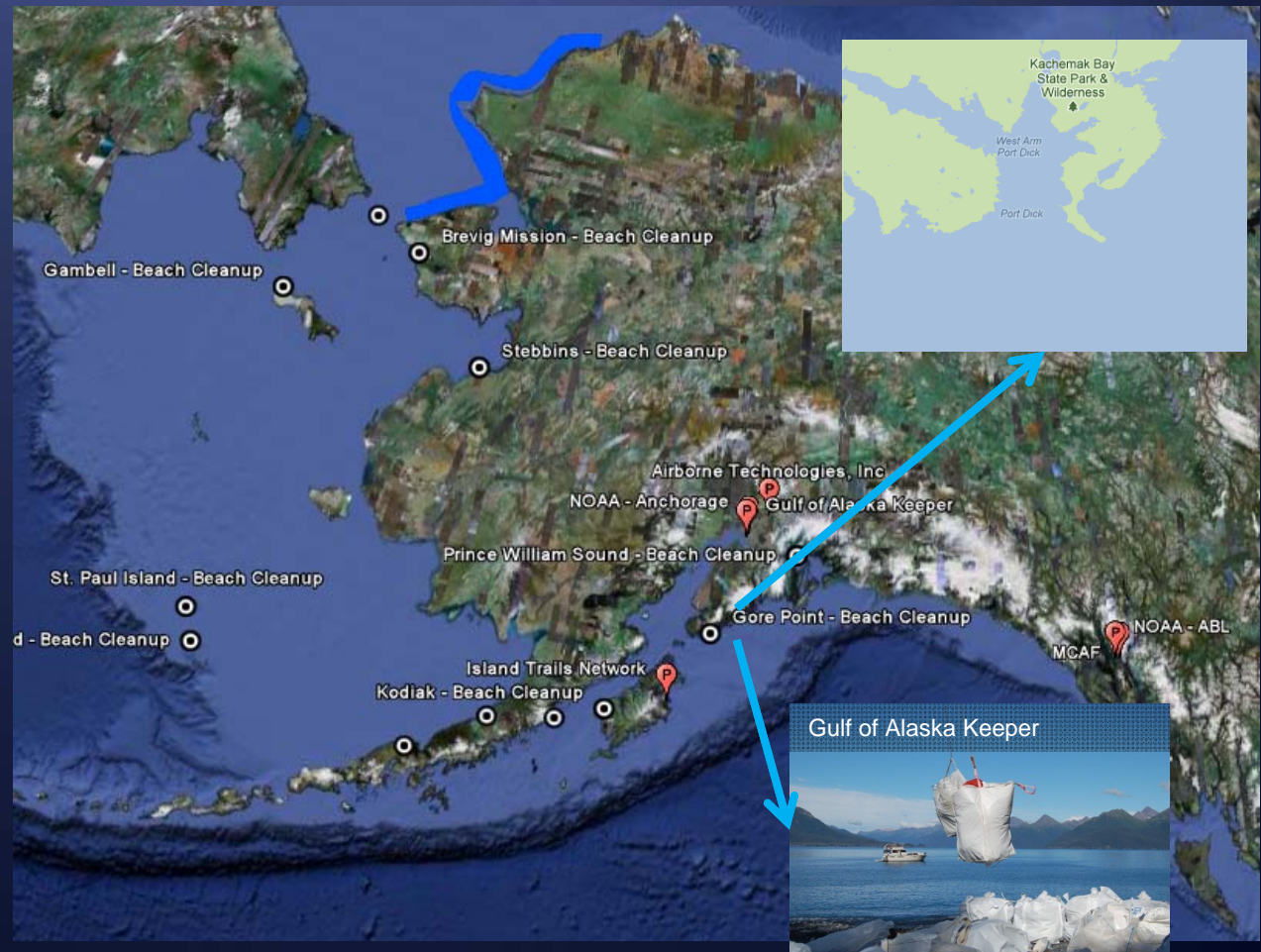
## Marine Debris – Already in Alaska

### MDP in AK

- 23 projects
  - Research
  - Outreach
  - Removal

### EX: Gore Point

- <2 mile beach
- 20+ tons of debris in removed 2007





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## Tsunami Marine Debris – What is it?





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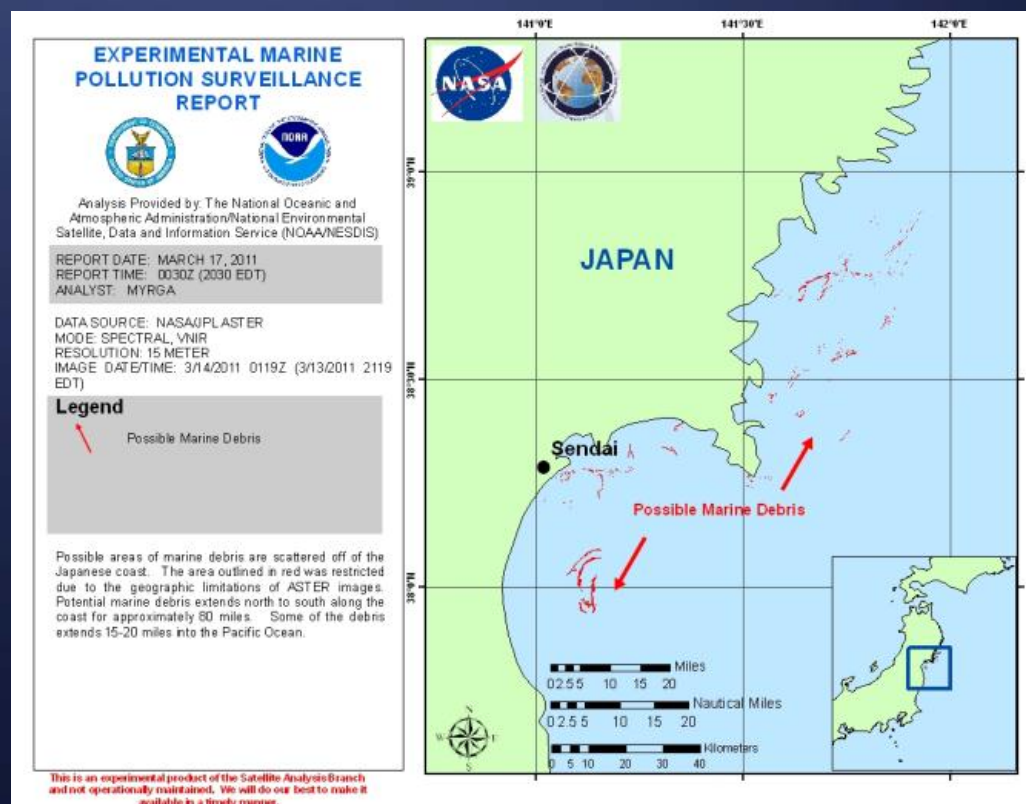
## Marine Debris – Early Sightings



Photo: US Navy Pacific Fleet

### Aerial Imagery – March 13

- Patches and fields
- Wood, construction materials abundant



### Satellite Imagery – March

- Patches and fields – By April 14, debris no longer visible

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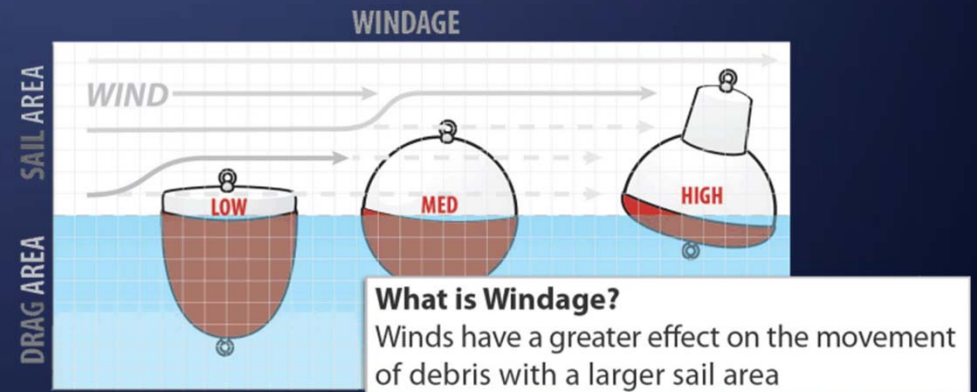
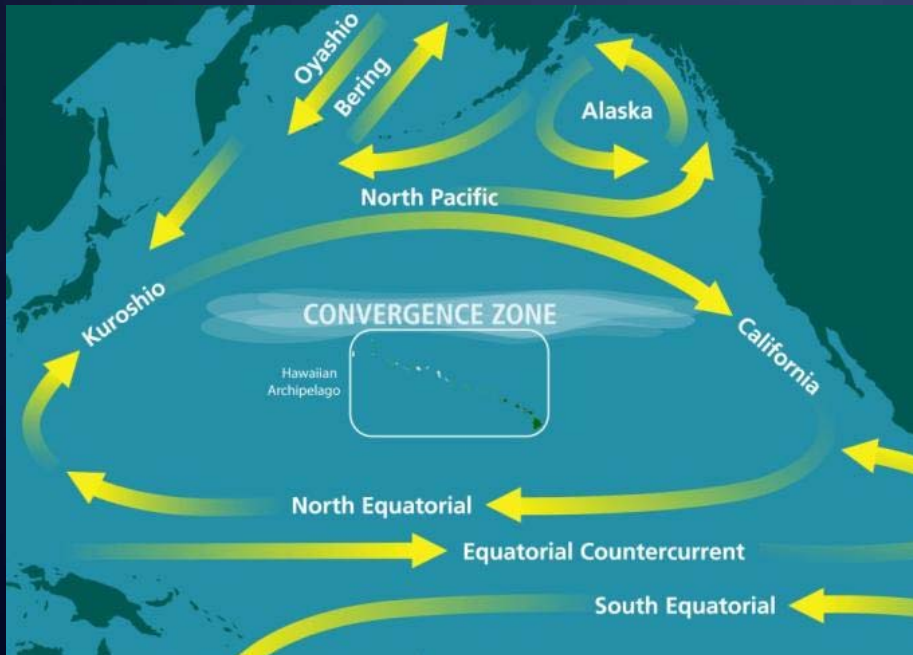
## Modeling

### Where will the debris go, and when?

Ocean currents

+

Winds



- Combination of sail area and drag
- **Low** = slow (e.g., wood, nets)
- **Medium** = moderate (e.g., fishing vessel)
- **High** = fast (e.g., unoccupied inflatable life raft, Styrofoam)



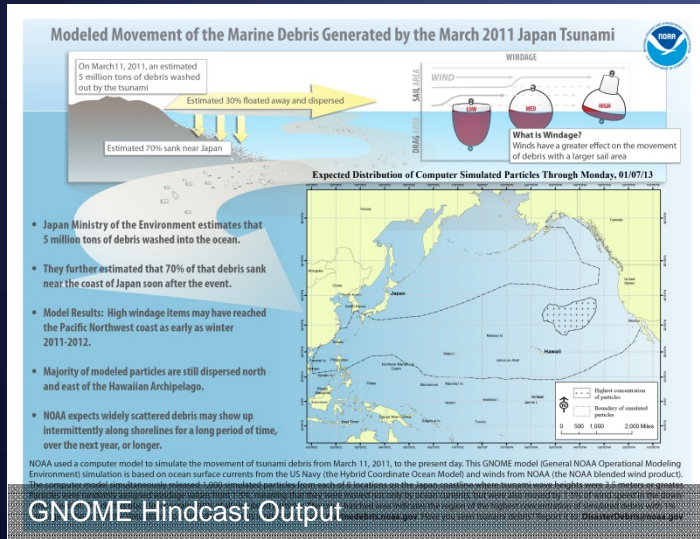
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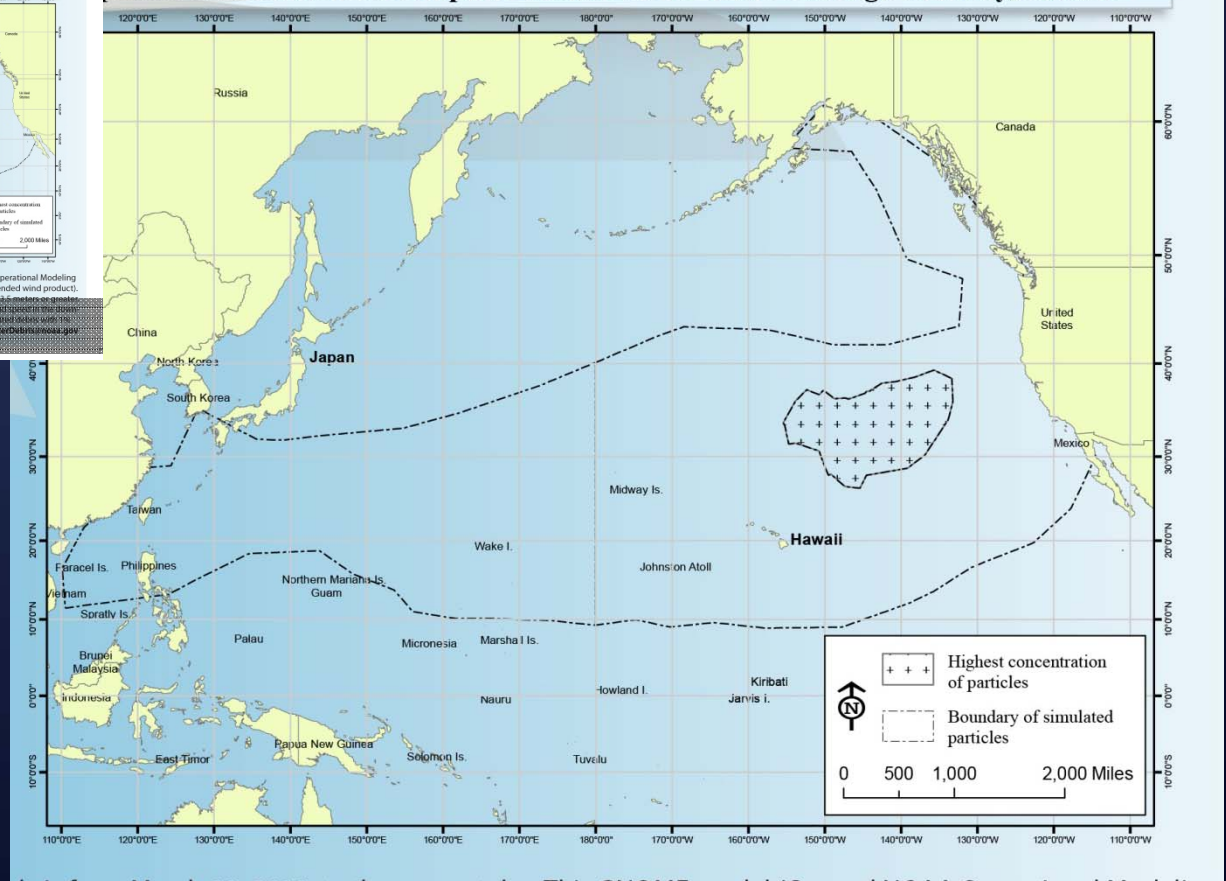
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## Modeling



### Expected Distribution of Computer Simulated Particles Through Monday, 01/07/13



### GNOME Hindcast

- 8,000 total particles from 8 locations
- Random windage: low to high
- Where debris may be NOW



# Marine Debris

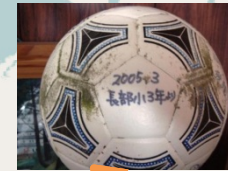
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Marine Debris Sightings as of January 10, 2013

## Sightings



**Japan Tsunami Marine Debris  
Debris Detection Satellite Target Areas  
(updated 9/20/12)**

■ No Debris Sighted  
■ Processing

### Sightings

**Japan Tsunami Debris Potential Sightings  
(updated 1/10/13)**

● Potential

**Japan Tsunami Debris Confirmed Sightings  
(updated 1/10/13)**

▲ Confirmed



Reported to NOAA as possible tsunami debris sightings (red triangle) indicate objects that may be linked to the tsunami, based on unique identifiers or contact information, to confirm its origin.

Problem, and not all debris found on U.S. shorelines can be confirmed to note that potential sightings may not be items lost or abandoned before or after the tsunami from sources around the Pacific Rim. For more information regarding tsunami marine debris from Japan please visit: <http://marinedebris.noaa.gov/tsunami>



0 450 900 1350 1800 mi

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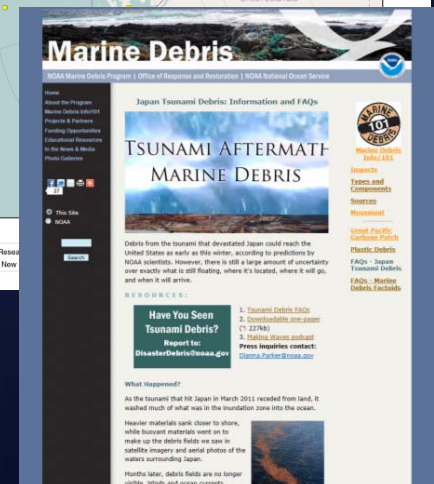
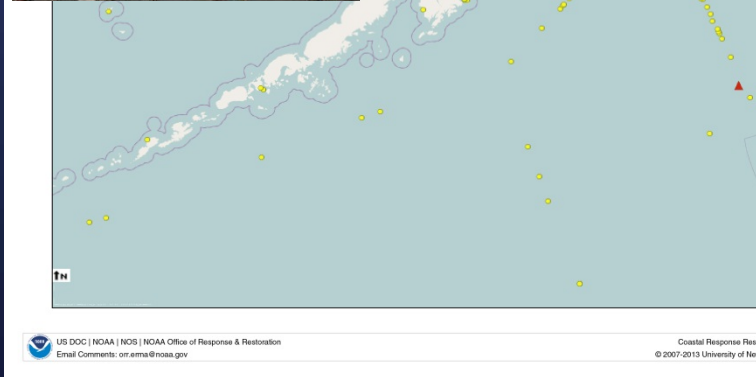
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## Tsunami Marine Debris – Actions

1. Detection
  - Satellite, Aerial, Vessel
2. Modeling
3. Monitoring
  - Baseline data
4. Planning / Preparedness
  - Regional
5. Communication





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ERMA | Environmental Response Management Application  
Arctic

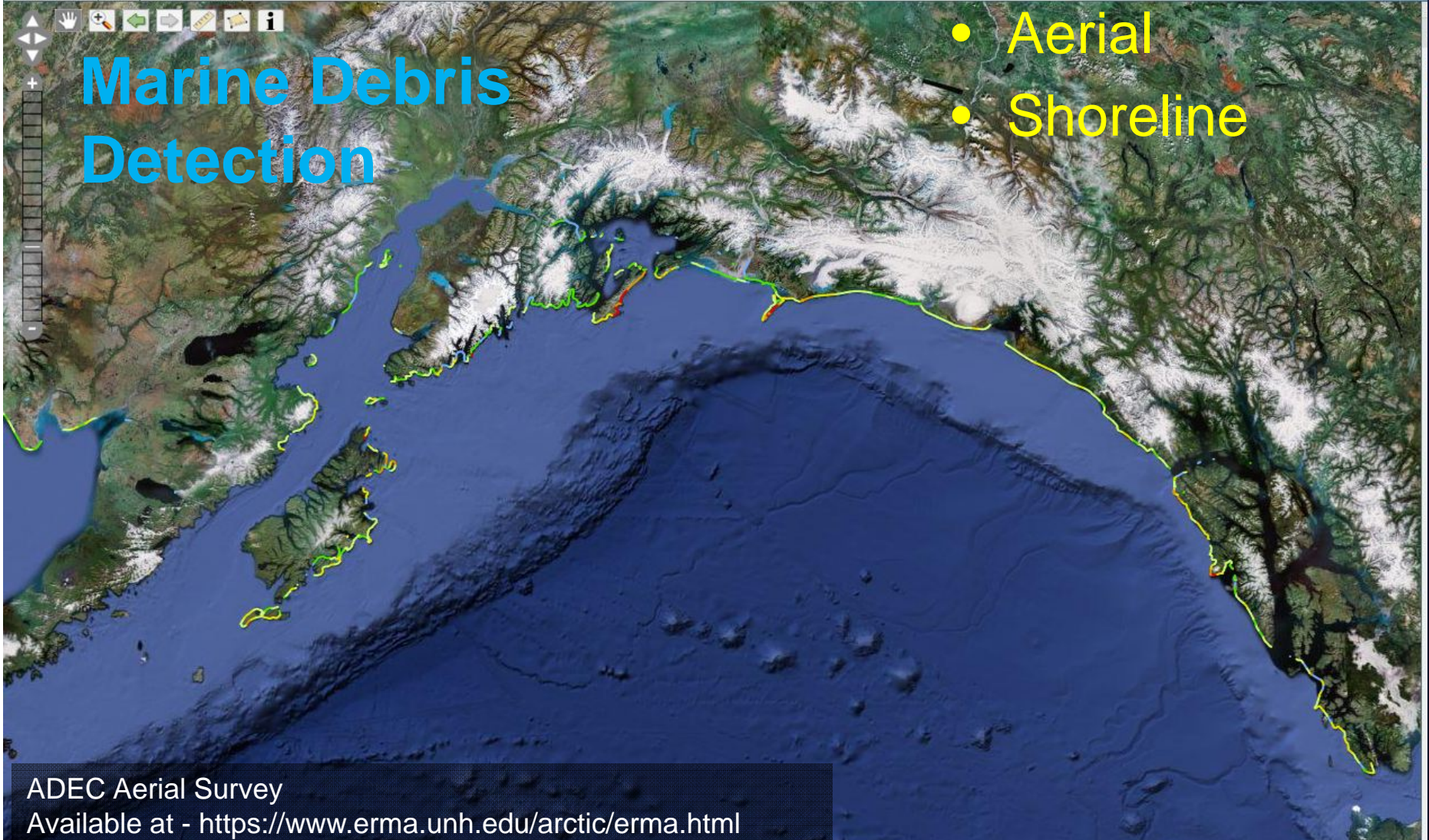
Information Help Recent Data

Find



## Marine Debris Detection

- Aerial
- Shoreline



ADEC Aerial Survey  
Available at - <https://www.erma.unh.edu/arctic/erma.html>





## Planning / Preparedness

- Regionally Based Planning
  - 5 States – AK, WA, OR, CA, HI
- Inclusive Process
  - Federal, State, Native, MD Community inputs
- Alaska
  - Federal Framework
  - Prioritization







## Tsunami Marine Debris – What we know

- Tsunami debris **added to an existing problem**
- Likely much of the **debris sank near shore off Japan coast.**
- **Debris is dispersed** and not in large concentrations or fields.
- **Radioactive debris?**
  - Consensus that contamination of debris is **highly unlikely**
- **Sightings**
  - **Twenty** sightings of confirmed JTMD (as of 01/24/13), many more unconfirmed
  - Presence of confirmed debris means **JTMD is present**, but **individual items can rarely be “fingerprinted” back to their origin.**
  - **Noted increase in styrofoam, buoys and high-floating debris during 2012 field season.**
- **Planning**
  - Planning and preparation is being managed at state-by-state level.



## Thank You

Thanks to: US Coast Guard, National Park Service, US Fish and Wildlife Service, US Forest Service, US EPA, NOAA NWS-VOS, NMFS, State of Alaska DNR, NOAA NESDIS, NGA, ADEC, DF&G, Gulf of Alaska Keeper, Marine Conservation Alliance Foundation, Island Charters, Island Trails Network, Sitka Sound Science Center, Center for Alaskan Coastal Studies, and many others!

**Peter Murphy**

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**Report JTMD Sightings to:**  
**[disasterdebris@noaa.gov](mailto:disasterdebris@noaa.gov)**